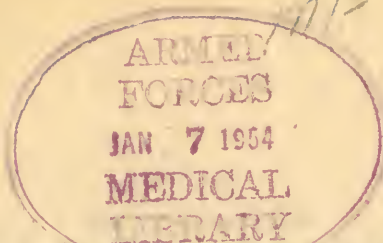


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Letter No. 11
June 21, 1943

Dear Doctor:

This letter is sent to you by the Surgeon Generals of the Army, Navy, and the U.S. Public Health Service, with the cooperation of the Committee on Information of the Division of Medical Sciences of the National Research Council.

Oxygen therapy in shock is recommended by Dr. George Melton (Lancet, April 17, 1943, page 481). In more severe cases it helped to raise the blood pressure, improved the pulse, color, mental alertness and well being. Experimentally oxygen appears to be most useful in hemorrhage which has been arrested. Oxygen does not replace more important methods of treatment, such as transfusions, but is an adjuvant. Oxygen helps to counteract the depressive action of morphine on the medulla.

British investigators, Drs. J. Shaw Dunn, H.L. Sheehan, and N.G.B. McLetchie of the University of Glasgow have found two substances which will produce actual necrosis of almost all of the islets of Langerhans of the pancreas in rabbits. Such an effect occurred following intraperitoneal inoculation of a synthetic styryl-quinoline, also following intravenous inoculation of alloxan. Alloxan is the uraide of mesoxalic acid. It is a component of the uric acid molecule.

The evidence of the necrosis of the islets of Langerhans is an initial rise of blood sugar, followed by intense hypoglycemia, which ends fatally with sub-normal temperature in 12 to 48 hours. The lesion is apparently caused by overstimulation of the islets with overproduction of insulin, and later death of the cells from overstrain.

when
At the Annual Session of the American Medical Association, Dr. E.P. Joslin was awarded the Distinguished Service medal, he indicated the possibility that these substances may be harnessed in some manner so as to produce sufficient stimulation to overcome deficiency of the islands of Langerhans. (Lancet, Apr. 17, 1943, p. 484)

Jaundice of the epidemic type appeared in an outer London borough toward the end of 1942. (Infective Hepatitis, J.C. Ford, Lancet, May 29, 1943, page 675) The first intimation of the outbreak was in October, 1942, when a private practitioner requested help in the diagnosis of a case in a boy, age 10. It was found that ten other cases had occurred in the same district.

In the middle of November there was a sharp rise in the incidence. Altogether there were 300 cases of infective hepatitis within 9½ months, with one death. Prodromal symptoms include pre-icteric pruritus, urticarial rashes, a meningeal reactions, and other manifestations. The infective agent was not isolated. The condition was brought under control by the usual measures against infectious diseases. Any child who vomited in school was excluded for seven days.

British experience with immersion foot has confirmed Webster's findings that cooling the hot limbs relieved pain and tingling. Exposure of the feet to a cool room temperature (15 to 18° C.) with a fan playing on the soles proved a simple and satisfactory method. It was not found necessary to spray cold water through the fan or to use ice-bags. Cooling must be continuous. In the cases described, edema had subsided before treatment was commenced. The British investigators believe, with Webster, that by reducing metabolic requirements, it overcomes a relative anoxia existing in the hot tissues. (C.C. Ungley, M.D., Surgeon Commander RNVR, Lancet, May 29, 1943, page 681)

A new multi-purpose dressing is described by Lt. Colonel John L. Gallagher in Military Surgeon for June, 1943, page 609. The dressing is a simulated sea sponge designed as a pressure dressing. The oval sponge shaped dressings are made in two sizes. A square of grade "A" surgical gauze, 9 inches for medium size and 12 inches for large size, is laid over an improvised box (3½ inches x 2½ inches x 3 inches high, for the medium size and 3 inches x 4 inches x 3 inches high for the large size) and grade one cotton waste is used to firmly fill the box pushing the gauze with it. About two ounces of waste cotton is used for the medium size dressing and four ounces for the large size. The four edges of the gauze are then enveloped around the cotton waste and sewed into place with a needle and No. 40 white thread. A bandage (3 inches x 10 yards for medium size and a 4 inch bias cut stockinette bandage, 4 yards long, for the large size) is unwound for a few inches and the end anchored to the top of this pad with the needle and thread. The bandage is then rerolled, and a mattress stitch of No. 6 black thread is passed through one side of the sponge, carried over to the other side and passed through again. The two ends are brought over the bandage and tied with a single bow knot, with the pull-end left long for releasing upon its application. The completed dressing is then placed in a double common Kraft (store) bag (one inside the other), using a one-pound bag for the medium size and a two-pound bag for the large size. For Army field use a more durable special duplex bag has been devised. The end of the bag is then folded over and is stitched on the sewing machine and the excess paper is cut away. The package is then sterilized in

an autoclave for thirty minutes at twenty pounds pressure. It is removed from the sterilizer and immediately dipped in melted hard paraffin at approximately 200° F. When the bag of sulfanilamide crystals (4 grams) is to be attached to the package, it is pre-sterilized (dry heat). It is then stitched to the top of the original paraffin bag, external to the stitched line. The combined package is immersed briefly in melted hard paraffin.

In the Archives of Ophthalmology (June, 1943, page 1000) Major Phillips Thygeson discusses the "Sulfonamide Compounds in the Treatment of Ocular Infections," including a complete review of the available experience on the subject. It is concluded that these drugs properly employed should lead to rapid and complete healing of the majority of ocular infections, caused by the viruses of trachoma, inclusion conjunctivitis and lymphogranuloma and by gonococcus, meningococcus, alpha and beta hemolytic streptococcus, staphylococcus (Staph. aureus), pneumococcus, influenza bacillus, diplobacillus, coliform rods, Friedländer's bacillus and pyocyanus bacillus. Little or questionable effect is to be expected in brucellosis or tularemia and in infections due to non-hemolytic or anaerobic streptococci. No results are to be looked for in ocular infections such as ocular pemphigus, sympathetic ophthalmia, uveitis and ocular tuberculosis, syphilis and leprosy. Because of the occasional occurrence of mild or severe toxic reactions, oral therapy with sulfonamide compounds should not be used for minor infections and should be replaced by local therapy whenever possible.

Commander L.R. Newhouser (MC), U.S.N., and Lieutenant E.L. Lozner (MC) U.S.N.R. of the Blood Research Division of the U.S. Naval Medical School, Bethesda, Maryland, have summarized in the New England Journal of Medicine (May 27, 1943, page 671) a number of practical considerations in the therapeutic use of blood derivatives. They considered serum albumin, liquid plasma, frozen plasma, and dried plasma. Albumin should not be considered a substitute for plasma and certainly not for whole blood. The chief danger in the use of human serum albumin arises from the fact that it represents but one of the serum proteins. It is extremely hypertonic and supplies practically none of the fluid that may be needed in the treatment of traumatic shock, burns, or hemorrhage. In traumatic shock, albumin must be considered solely as an emergency first-aid measure. There is danger from albumin kept at lower than ~~50° F. (122° F.)~~ freezing, and it is best kept at ~~temperatures~~ exceeding 50° C. (122° F.). At temperatures approaching the latter level, turbidity and gel formation may take place. As a precautionary measure should excessive flocculation occur, a small filter has now been included in the standard Army-Navy package for normal human serum albumin (concentrated).

temperatures

Liquid plasma, prepared by a closed method with scrupulously aseptic technic, may be preserved in the liquid state at room temperature in the temperate zone for at least as long as fourteen months. Over two thousand administrations of plasma prepared in this way by the Plasma Department of the Naval Medical School have been analyzed, with a reaction rate of approximately one per cent. The permissible temperature range of preservation lies between 50 and 86° F. Below this range, fibrin precipitation may occur; above this range, protein denaturation occurs. Because fibrin precipitation occurs, a filter is used in the intravenous set when the plasma is used. Such filters have been prepared in the National Naval Medical Center.

Liquid plasma, frozen within twenty-four hours after preparation, may be preserved indefinitely if stored below -15° C. Thawing must be done in a water bath at body temperature, and should not take longer than thirty minutes per bottle of plasma. Once accidental thawing occurs, it is absolutely imperative that a good filter be used in the final administration set.

Dried plasma can survive a wider range of temperature variation than any other blood derivatives or forms of preservation. Officers should follow explicitly instructions on the Army-Navy package of dried plasma. The commonest error is encountered in releasing the vacuum in the plasma bottle with the double-ended needle before this needle has been inserted in the ~~xxxxx~~ water bottle. It should always be inserted in the water bottle first. The package has been redesigned to provide 500 cc. ~~xxxx~~ rather than the lesser amount as formerly. Experience has shown that danger from properly prepared pooled blood plasma is practically nil.

Dr. F.R. Zadik, in the Lancet for March 13, 1943 (page 335), discusses a series of 27 cases of skin grafting following amputation through the terminal phalanx of fingers with two different methods of full thickness skin grafting and eight controls by allowing the wound to granulate, some in a closed plaster cast and some without it. All were treated as outpatients. Flap grafts and free full thickness grafts were compared with each other and with controls. Flap grafts were found to be reliable and to give good results but to be rather difficult to do in the casualty room and uncomfortable to the patient. Free grafts with immobilization in plaster are easier to do but not so reliable; they will usually give fair results, however, even if the graft does not take completely. Letting the wound granulate, even in a plaster cast, is not a method of choice in amputations through the terminal phalanx.
